Joint Annual Meeting of the Swiss and Austrian Physical Society 2023

Monday, 4 September 2023 - Friday, 8 September 2023

Scientific Programme

Abstracts can be submitted for all sessions listed below. The choice between an oral or a poster presentation of your contribution is possible. Further instructions are available in the abstract submission form.

Info on talk lengths
The standard length for a contributed talk is 15 min (12+3), for an invited talk 30 min (25+5). The session organisers might extend or shorten talks where necessary. Refer to the schedule once it will be available.

Theoretical Physics
As in the previous years, theoretical contributions are highly encouraged and will be included directly in a corresponding topical session. This way, the sessions will profit from a broad range of experimental, phenomenological, and theoretical advancements that are relevant in the specific topical field and thus can engage in broader and deeper discussions.
Please submit your abstract to the session which best matches your topic. You can optionally mark your contribution as "theoretical" in the submission interface.

Contact: Philippe Jetzer (jetzer@physik.uzh.ch)

Accelerator Science and Technology

Particle accelerators play an important role in high energy physics, materials and life sciences. They are used to create a very special state of matter — beams of particles (protons, electrons, photons, neutrons, muons, neutrinos etc.). Contributions are encouraged on all aspects of accelerator development for future high energy frontier electron, proton and muon colliders, high brightness synchrotron light sources as well as high intensity neutron sources.

Contact: Leonid Rivkin (leonid.rivkin@psi.ch)

Applied Physics; Acoustics

Atomic Physics and Quantum Optics

Biophysics, Medical Physics and Soft Matter

Condensed Matter Physics (KOND)

The condensed matter program welcomes contributions from all topics within Condensed Matter Physics, including magnetism, superconductivity, semiconductors and more. Investigations by advanced experimental techniques, e.g. by using synchrotron radiation, are highly welcome. Where relevant, we encourage participants to submit their abstracts to the respective focus sessions

described below.

Contact: Henrik M. Rønnow (henrik.ronnow@epfl.ch), Ilaria Zardo (ilaria.zardo@unibas.ch), Alberta Bonanni (alberta.bonanni@jku.at), Roland Resel (roland.resel@tugraz.at)

Gravitational Waves

For this special session contributions covering all aspects of gravitational wave physics are welcome, in particular those connected with the Einstein Telescope (ET), the LISA mission, and the ongoing LIGO-Virgo detectors.
Relevant topics include data analysis, theoretical aspects, and experimental challenges of ET and / or LISA.
We particularly encourage PhD students and postdocs to submit abstracts and to join the meeting. Depending on the number of proposed contributions, the session will take place on one or two afternoons. Poster contributions are also welcome.

Contact: Steven Schramm (steven.schramm@cern.ch), Philippe Jetzer (jetzer@physik.uzh.ch)

History and Philosophy of Physics

Our session is open to any topic in the history and philosophy of physics. A special focus will be on astronomy, astrophysics and cosmology. Since ancient times, the study of the sky has fascinated human beings. In the last few decades, astrophysics and cosmology have seen spectacular breakthroughs, e.g. the discovery of exoplanets or the confirmation that the expansion of the Universe is accelerated. We thus invite contributions that consider astronomy, astrophysics and cosmology from a historical or philosophical perspective.

Contact: Claus Beisbart (claus.beisbart@unibe.ch), Bruno Besser (bruno.besser@oeaw.ac.at)

Nanotechnology: From Hype to Application

Nanotechnology was enabled by our ability to see at the nanoscale with novel microscopy techniques, namely scanning electron microscopy and scanning tunneling microscopy. For their invention Ernst Ruska, Gerd Binnig and Heinrich Rohrer were awarded the Nobel prize in Physics 1986. This marked the beginning of huge excitement and significant hype both in research and industry, raising high expectations for ubiquitous nanotechnology applications.
In this year’s Physics in Industry session, we want to bring together presentations from a broad range of companies that have managed to persevere beyond the initial hype and are applying nanotechnology today.
If you are interested in presenting a talk in this session please contact the section heads.

Contact: Thilo Stöferle (tof@zurich.ibm.com), Andreas Fuhrer (afu@zurich.ibm.com), Peter Korczak (peter.korczak@aon.at), Christian Teissl (christian.teissl@destination-wattens.at)

Neutron Science

TNeutrons produced at large-scale research facilities provide key insights in topics ranging from particle to solid state physics, to quantum materials, to soft matter, to functional and engineering materials. Together with our colleagues from the section Physics with Neutron and Synchrotron Radiation (NESY) within the Austrian Physical Society, the Swiss Neutron Science Society welcomes abstract submissions from all topics where neutron experiments have contributed, or may contribute in the future.

Contact: Roland Resel (roland.resel@tugraz.at), Marc Janoschek (Marc.janoschek@psi.ch)

New prospects in ARPES for quantum materials

Angle-resolved photoemission spectroscopy (ARPES) is one of the most powerful techniques to measure the momentum-resolved electronic structure of materials. In the recent years, the development of high brilliance synchrotron facilities, as well as stable laser technology, have allowed new possibilities like micro- and nano-ARPES, in-operando ARPES on tiny devices, as well as versatile time-resolved ARPES to cite a few of them.
This special session is dedicated to review the recent ARPES developments and highlight the most advanced achievements in systems ranging from quantum materials, correlated systems and complex devices. The session will bring together the ARPES research groups and serve to elaborate novel perspectives and collaborative development.

Contact: Claude Monney (claude.monney@unifr.ch), Luc Patthey (luc.patthey@psi.ch)

Nuclear, Particle- and Astrophysics (TASK)

Plasma Physics

Quantum Computing (by NCCR SPIN)

The quantum computing session will combine presentations on recent scientific advances in the field of quantum computing with various qubit platforms. Contributions from ion traps, neutral atoms, superconducting qubits, spin qubits and other hardware platforms are welcome, as well as presentations that address progress on scalable qubit control, error correction, novel quantum algorithms and software applications. Both Austria and Switzerland are important players in this thriving area of research with many groups contributing to European and other important international research programs. The session is organized by the NCCR SPIN: Spin qubits in Silicon, and wishes to bring together the quantum computing communities from Austria and Switzerland. We welcome oral and poster contributions from both senior and junior researchers.

Contact: sps-qc[at]nccr-spin.ch

Spintronics and Magnetism at the Nanoscale

This focus session concerns the latest advancements in the fabrication, measurement, and exploitation of novel functionalities in spintronic and nanomagnetic materials. We aim to showcase recent work conducted by experimentalists and theorists from Switzerland, Austria, and neighboring countries who are researching the magnetic properties of thin films, interfaces, and nanostructures. Hans Hug (Empa) and Santa Pile (JKU Linz) will present invited talks during this session.

Contact: Jeffrey Brock (jeffrey.brock@psi.ch), Aleksandr Kurenkov (akeksandr.kurenkov@psi.ch), Laura Heyderman (laura.heyderman@psi.ch)

Surfaces, Interfaces and Thin Films